

**IN THE CLAIMS:**

1 1. (Currently Amended): A removable nonvolatile memory device for use in a ~~file~~  
2 ~~server~~ storage system having an operating system kernel, comprising:  
3 a plurality of partitions, each of the plurality of partitions capable of storing dif-  
4 ferentiated information;  
5 a first kernel image, the first kernel image stored in a first partition of the plurality  
6 of partitions wherein the first kernel image is an upgrade kernel; and  
7 a second kernel image, the second kernel image stored in a second partition of the  
8 plurality of partitions, wherein the second kernel image is a last known good kernel.

1 2. (CANCELLED)

1 3. (Currently Amended): The removable nonvolatile memory device of claim 1,  
2 wherein the ~~file-server~~ storage system further comprises a set of boot instructions includ-  
3 ing instructions for booting from the first kernel image.

1 4. (Previously Presented): The removable nonvolatile memory device of claim 3,  
2 wherein the set of boot instructions further comprises instructions for booting from the  
3 second kernel image if an error event occurs during booting from the first kernel image.

1 5. (Previously Presented): The removable nonvolatile memory device of claim 1,  
2 further comprising a set of diagnostic software, the diagnostic software stored in a third  
3 partition of the plurality of partitions.

1 6. (Previously Presented): The removable nonvolatile memory device of claim 5,  
2 further comprising a diagnostic log, the diagnostic log stored in a fourth partition of the  
3 plurality of partitions.

1 7. (Currently Amended): A ~~file server~~ storage system for a computer having a proc-  
2 essor, a memory coupled to the processor, and a system bus to which the memory and  
3 processor are coupled, the computer having an operating system kernel and being config-  
4 ured to implement a file system, the ~~file server~~ storage system comprising:

5 a removable nonvolatile memory device coupled to the system bus, the removable  
6 nonvolatile memory device having a plurality of partitions, wherein a first partition of the  
7 plurality of partitions containing a kernel image, wherein the first kernel image is an up-  
8 grade kernel; and

9 a set of boot instructions resident in the ~~file server~~ storage system including in-  
10 structions for booting from a first set partition of the removable nonvolatile memory de-  
11 vice and instructions for booting from an alternate set partition of the removable nonvola-  
12 tile memory device if an error event occurs during booting from the first set partition, ;  
13 wherein the removable nonvolatile memory device further comprises a second partition  
14 of the plurality of partitions, the second partition containing a last known good kernel im-  
15 age.

1 8. (Currently Amended): The ~~file server~~ storage system of claim 6 7 wherein the re-  
2 movable nonvolatile memory device is a compact flash.

1 9. (CANCELLED)

1 10. (Currently Amended): The ~~file server~~ storage system of claim 6-7, wherein the set  
2 of boot instructions are contained in firmware within the ~~file server~~ storage system.

1 11. (Currently Amended): The ~~file server~~ storage system of claim 6-7 further compris-  
2 ing a third partition of the plurality of partitions, the third partition containing diagnostic  
3 software.

1 12. (Currently Amended): The ~~file-server system~~ storage system of claim 10 further  
2 comprising a fourth partition of the plurality of partitions, the fourth partition containing  
3 a diagnostic log.

1 13. (Currently Amended): A method for installing a new kernel image to a removable  
2 nonvolatile memory device having a plurality of partitions in a ~~file-server~~ storage system  
3 comprising the steps of:

4 storing the new kernel image on a storage device;  
5 copying a current boot kernel from a current boot kernel location to a last known  
6 good kernel location; and  
7 copying the new kernel image to the current boot kernel location.

1 14. (Previously Presented): The method of claim 11, wherein the current boot kernel  
2 location is a first partition of the removable nonvolatile memory device.

1 15. (Previously Presented): The method of claim 11, wherein the last known good  
2 kernel location is a second partition of the removable nonvolatile memory device.

1 16. (Currently Amended): The method of claim 11, wherein the storage device further  
2 comprises one or more storage disks operatively interconnected ~~to the~~ to the file-server  
3 storage system.

1 17. (Previously Presented): A computer-readable medium operating on a computer in  
2 a network that includes a removable nonvolatile memory device having a plurality of par-  
3 titions, the computer-readable medium including program instructions for performing the  
4 steps of:  
5 storing a new kernel image on a storage device;  
6 copying a current boot kernel from a current boot kernel location to a last known  
7 good kernel location; and

8 copying the new kernel image to the current boot kernel location.

1 18. (Currently Amended): A method for installing an upgrade kernel in a computer  
2 system having a removable nonvolatile memory device, the removable nonvolatile mem-  
3 ory device having at least a first partition and a second partition, the computer system  
4 currently executing a copy of an old kernel stored in the first partition of the removable  
5 nonvolatile memory device, the method comprising the steps of:

6 determining if the computer system booted from the old kernel, and if so, copying  
7 the old kernel from the first partition to make a copy of the old kernel to place in the sec-  
8 ond partition;

9 adjusting a set of boot variables so that the computer will boot from the second  
10 partition;

11 copying a stored copy of the upgrade kernel to the first partition; and

12 adjusting the set of boot variables so that the computer will boot from the first  
13 partition.

1 19. (Currently Amended): The method of claim ~~16~~ 18 further comprising the step of:  
2 verifying the copy of the old kernel written to the second partition before adjust-  
3 ing the set of boot variables so that the computer will boot from the second partition.

1 20. (Previously Presented): The method of claim 17 further comprising the step of :  
2 verifying the copy of the upgrade kernel to the first partition before adjusting the  
3 set of boot variables so that the computer will boot from the first partition.

1 21. (Previously Presented): A method for installing an upgrade kernel in a computer  
2 system having a removable nonvolatile memory device, the removable nonvolatile mem-  
3 ory device having at least a first partition and a second partition, the computer system  
4 currently executing a copy of an old kernel stored in the second partition of the remov-  
5 able nonvolatile memory device, the method comprising the steps of:

6           outputting a message to a user alerting the user that the computer booted from a  
7   last known good kernel;  
8           adjusting a set of boot variables so that the computer will boot from the second  
9   partition;  
10          copying a stored copy of the upgrade kernel to the first partition; and  
11          adjusting the set of boot variables so that the computer will boot from the first  
12   partition.

1   22.   (Previously Presented): The method of claim 19 further comprising the step of:  
2          verifying the copy of the upgrade kernel to the first partition before adjusting the  
3   set of boot variables so that the computer will boot from the first partition.

1   23.   (CANCELLED)

Please add new claims 24, et seq. as follows:

- 1 24. (New): A method for checking a removable nonvolatile memory device, the method  
2 comprising the steps of:  
3       determining if the removable nonvolatile memory device is a valid device for a  
4 storage system; and  
5       determining if a first partition is of a sufficient size to hold a kernel image.
  
- 1 25. (New): The method of claim 24 wherein determining if the removable nonvolatile  
2 memory device is a valid device for a storage system comprises not accepting the remov-  
3 able nonvolatile memory device for use with a kernel installation procedure if the non-  
4 volatile memory device fails a test.
  
- 1 26. (New): The method of claim 25 wherein the test comprises ensuring a first partition  
2 is a sufficient size to hold a kernel image.
  
- 1 27. (New): The method of claim 24 wherein determining if the first partition is of suffi-  
2 cient size to hold the kernel image comprises determining if a second partition is greater  
3 than a first partition.
  
- 1 28. (New): The method of claim 27 wherein determining if the second partition is  
2 greater in size than the first partition comprises checking the second partition against the  
3 first partition.